

[54] CAPACITIVE TRANSDUCERS

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[21] Appl. No.: 435,476

[22] PCT Filed: Apr. 12, 1989

[86] PCT No.: PCT/GB89/00389

§ 371 Date: Nov. 29, 1989

§ 102(e) Date: Nov. 29, 1989

[87] PCT Pub. No.: WO89/09927

PCT Pub. Date: Oct. 19, 1989

[30] Foreign Application Priority Data

Apr. 12, 1988 [GB] United Kingdom 8808614

[51] Int. Cl.⁵ G01L 9/12; H01G 7/00

[52] U.S. Cl. 361/283; 73/718; 307/116

[58] Field of Search 361/283; 73/718, 724, 73/651; 307/116; 33/322

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[57] ABSTRACT

A signal conditioning circuit for multiple channel capacitive displacement transducers. The transducer 30 comprises three differential capacitive transducers, driven by respective square waves from modulators 32x, 32y, 32z. The modulators are driven at different frequencies which are even multiples of each other, derived from a divider 68. The signals from each differential capacitance pair of the transducer 30 are received by a common charge amplifier 48. They are then demodulated by respective phase sensitive rectifiers 50x, 50y, 50z, each of which is driven at the same frequency as the corresponding modulator. The outputs of the phase sensitive rectifiers are integrated, e.g. by circuits 60, 62, 64 for one of the channels, and the resulting voltage signal is fed back to the corresponding modulator so as to tend to null the input to the charge amplifier 48. The use of modulating frequencies which are even multiples of each other enables the signals to be multiplexed through a single charge amplifier 48. The mechanical construction of the multi-channel transducer 30 is also described.

12 Claims, 6 Drawing Sheets

